

October 20, 2003

TO: Internal File

THROUGH: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Jerriann Ernstsens, Ph.D., Environmental Specialist/Biology

RE: Technical Field Visit, Prior to Undermining East Fork of Box Canyon, Canyon Fuel Company, LLC., SUFCO Mine, C/041/002

**Other Attendees:** Division – Susan White, Wayne Western; SUFCO – Mike Davis.

**Date & Time:** September 4, 2003, morning and afternoon.

**PURPOSE:**

The Division visited the east fork of Box Canyon at the SUFCO Mine on September 4, 2003. The Permittee will undermine the east fork of Box Canyon in November of 2003. It is expected that certain areas of the east fork will subside. The primary goal of the field visit was to examine the vegetation and related biology along the east fork, especially in areas expected to subside.

**FIELD OBSERVATIONS:** SEE IMAGES 09042003 IN DATABASE.

*ALONG EAST FORK OF BOX CANYON*

It had rained off and on the week before our visit.

The Permittee will undermine the east fork of Box canyon and subside certain areas of the stream channel.

We started at Joe's Mill pond and walked to the east fork channel. We walked along the channel until spring 217. At spring 217, we hiked up the eastern slope to an archeological site. We hiked along the channel edge to spring 105, then back to Joe's Mill pond.

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TECHNICAL FIELD VISIT

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The upper portion is intermittent and the lower stream channel is perennial. Flow on this day was fairly high (respectively) and water was clear. There are pools along the channel. Water was clear, especially in pools within the black hawk formation. There are many riparian plant species, few macros, and evidence of game along the stream channel.

The hanging gardens are few and not very robust. Plants are in fair to good condition, depending on the site.

The soil is a sandy-silt type all along the stream channel. The channel bottom is sandy-silt with some bedrock and bedrock with some sandy-silt within the castle gate and black hawk formations, respectively. The sandy-silt deposition depth and location is dynamic. The fluid movement of the sandy-silt is primarily dependent on precipitation and runoff (Mike Davis). The area had been recently flooded as seen by the plant debris especially in the upper portion of the stream channel. In addition, as part of this precipitation event, rocks and boulders had fallen from the cliff walls. This pile of rocks is located in the stream channel within the castle gate formation.

The mine plan shows that the 3<sup>rd</sup> left panel will be over spring 217. This spring is well vegetated with riparian and water-associated plant species including sedges, horsetail, moss, fern, violet, algae, penstemon, rose, fleabane, and aspen.

Spring 214 begins at an archeological site and enters into the stream channel within the black hawk formation. The channel at this spring junction includes a fall and pool. The pool was about 9" deep and 2.5' wide on this day. The vegetation at the spring junction include many of the same species associated with spring 217, but also include geranium, birch, redosier dogwood, and orchid.

#### *ARCHEOLOGICAL SITE*

The Division visited an archeological site that is expected to subside. This site is an overhang located above a large natural cavern. The cavern is wet from the spring and seeps.

#### *SPRING 105*

The east fork splits to a second *east fork*. (It's unclear why the east fork is not titled the middle fork and this second *east fork* titled the east fork?) This second east fork leads through a marshy meadow to spring 105. Mike Davis mentioned that this spring was recently measured at 6 gallons per minute.